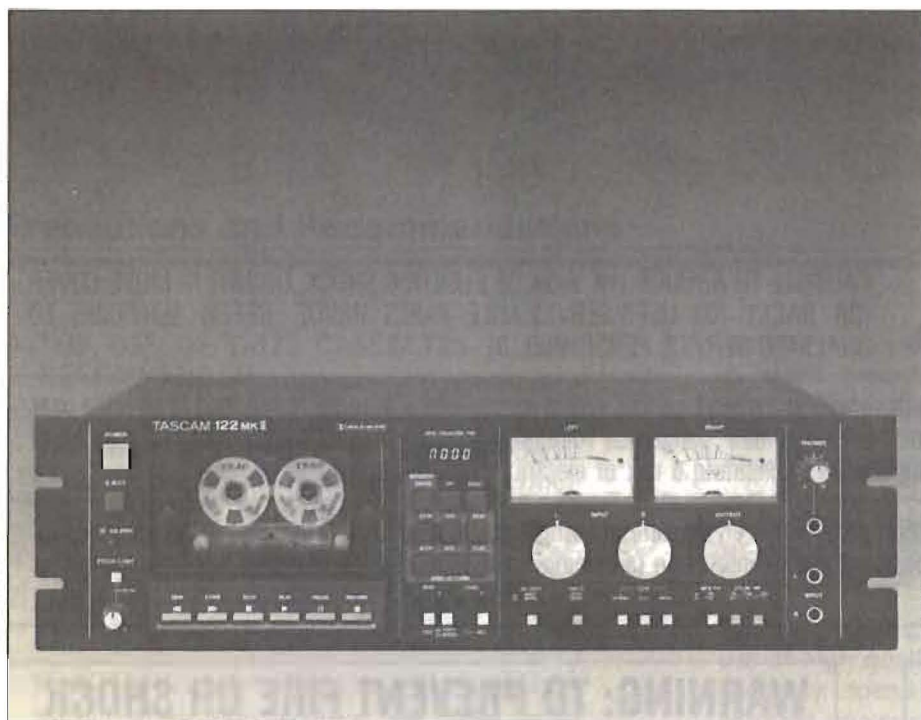


TASCAM

TEAC Professional Division

122MKII

Master Cassette Deck



OWNER'S MANUAL

5700091800

The guarantee of performance that we provide for the 122 Mk II must have several restrictions. We say that the recorder will perform properly only if it is adjusted properly, and the guarantee is that such adjustment is possible. However, we cannot guarantee your skill in adjustment or your technical comprehension of this manual. Therefore, if you open up the 122 Mk II, and your attempts at such things as rebias and record EQ trim are unsuccessful, we must make a service charge to correct your mistakes.

Recording is an art as well as a science. A successful recording is often judged primarily on the quality of sound as art, and we obviously cannot guarantee that. A company that makes paint and brushes for artists cannot say that the paintings made with their products will be critically well received. The art is the province of the artist. TASCAM can make no guarantee that the 122 Mk II *by itself* will assure the quality of the recordings you make. Your skill as a technician and your abilities as an artist will be significant factors in the results you achieve.



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

This appliance has a serial number located on the rear panel. Please record the model number and serial number and retain them for your records.
Model number _____
Serial number _____

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

Introduction

The TASCAM 122 Mk II is a professional rack-mount cassette deck designed to offer outstanding audio performance and convenience features. The highly accurate transport is under full logic IC control that offers the convenience of Memory functions including Return-to-Zero, Search-to-Cue, and block repeat.

Dolby HX Pro enhances the high frequency audio performance of the 122 Mk II, and a full range of calibration features ensure that your 122 Mk II will always deliver the optimum in audio from the cassette format. A built-in oscillator (400 Hz and 10 kHz) along with individual Bias and Level controls can be used to maximize performance with any tape type. "Cue and review" is possible, and the 122 Mk II's 3-head configuration produces real-time monitoring. The 3-head design also makes the independent azimuth adjustment of the record and reproheads possible.

Rear panel balanced XLR and unbalanced RCA connectors are supplemented by front panel phone jacks for easy rack-mount repatching. An optional RC-71 Remote Control Unit is available.

TABLE OF CONTENTS

Precautions and Recommendations 3

Note for U.K. Customers. 4

Voltage Conversion. 4

Features and Controls 5

Operation

 Recording 9

 Playback 9

 Erasing a Tape 9

To Make Professional Quality Recordings .. 10

Dolby HX PRO 11

Care and Maintenance

 Cleaning 12

 Degaussing (Demagnetizing) 13

Accessories 14

Specifications 16

Block Diagram 17

External Dimensions 17

*Dolby noise reduction and HX PRO headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX PRO originated by Bang and Olufsen. "Dolby", the double-D symbol and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

Precautions and Recommendations

1. THE USE OF C-120 CASSETTES IS NOT RECOMMENDED.

The extremely thin tape used in C-120 cassettes can lead to winding troubles, crimping, wrinkling and other damage to the oxide coating which will destroy your work.

2. USE THE SHORTEST POSSIBLE TAPE FOR A GIVEN JOB.

It is not unusual to play a tape numerous times before you achieve the most satisfactory result, so select a cassette length that is as close as possible to the length of the program you plan on recording. The shorter

cassettes use thicker and more durable tape. A short recording on a long cassette will force you to waste the unused portion of the tape if you choose to protect your master by removing the safety tabs. Shortest is best.

3. USE HIGH QUALITY TAPE FOR BEST RESULTS.

For best results, we strongly recommend the use of high quality tape. Remember, you will probably spend a lot of time and energy working on your material. Don't compromise; use the best. The improvement in your recordings will amply justify this small extra expense.

4. REMOVE THE SAFETY TABS OF THE CASSETTE WHEN RECORDING IS OVER.

When you are pleased with the recorded tape you have just finished, make sure to remove the safety tabs of the cassette. With the safety tabs removed, the 122 Mk II cannot record on the tape. This will ensure that you do not inadvertently erase previously recorded material.



5. Before recording, we recommend that you smooth out the tape pack by fast-winding and rewinding the cassette once.
6. Always make sure the transport is in STOP mode before attempting to open the cassette holder door.

Note for U.K. Customers

Due to the variety of plugs being used in the U.K., this unit is sold without an AC plug. Please request your dealer to install the correct plug to match the mains power outlet where your unit will be used as per these instructions.

IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:

BLUE:	NEUTRAL
BROWN:	LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows;

The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured BLACK. The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

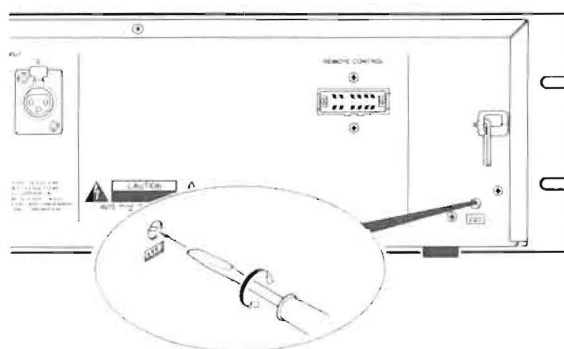
Voltage Conversion

This unit is adjusted to operate on the electric voltage specified on the unit or packing carton.

NOTE: This voltage conversion is not possible on models sold in the U.S.A., Canada, U.K., Australia, or Europe.

For general export units, if it is necessary to change the voltage setting of the 122 Mk II to match your area, use the following procedures. **ALWAYS DISCONNECT THE POWER LINE BEFORE MAKING THESE CHANGES.**

1. Locate the voltage selector on the rear panel of the 122 Mk II.
2. Using a regular (slot blade) screwdriver, turn the selector until the numerals corresponding to the voltage requirements for your area appear.



This product is manufactured to comply with the radio interference of EEC directive "82/499/EEC."

Bescheinigung des Herstellers/Importeurs

Hiermit wird bescheinigt, daß der/die/das

MAGNETTONBANDGERÄT TASCAM 122 Mk II

(Gerät, Typ, Bezeichnung)

in Übereinstimmung mit den Bestimmungen der

AMTSBLATT 163/1984, VFG 1045/1984

(Amtsblattverfügung)

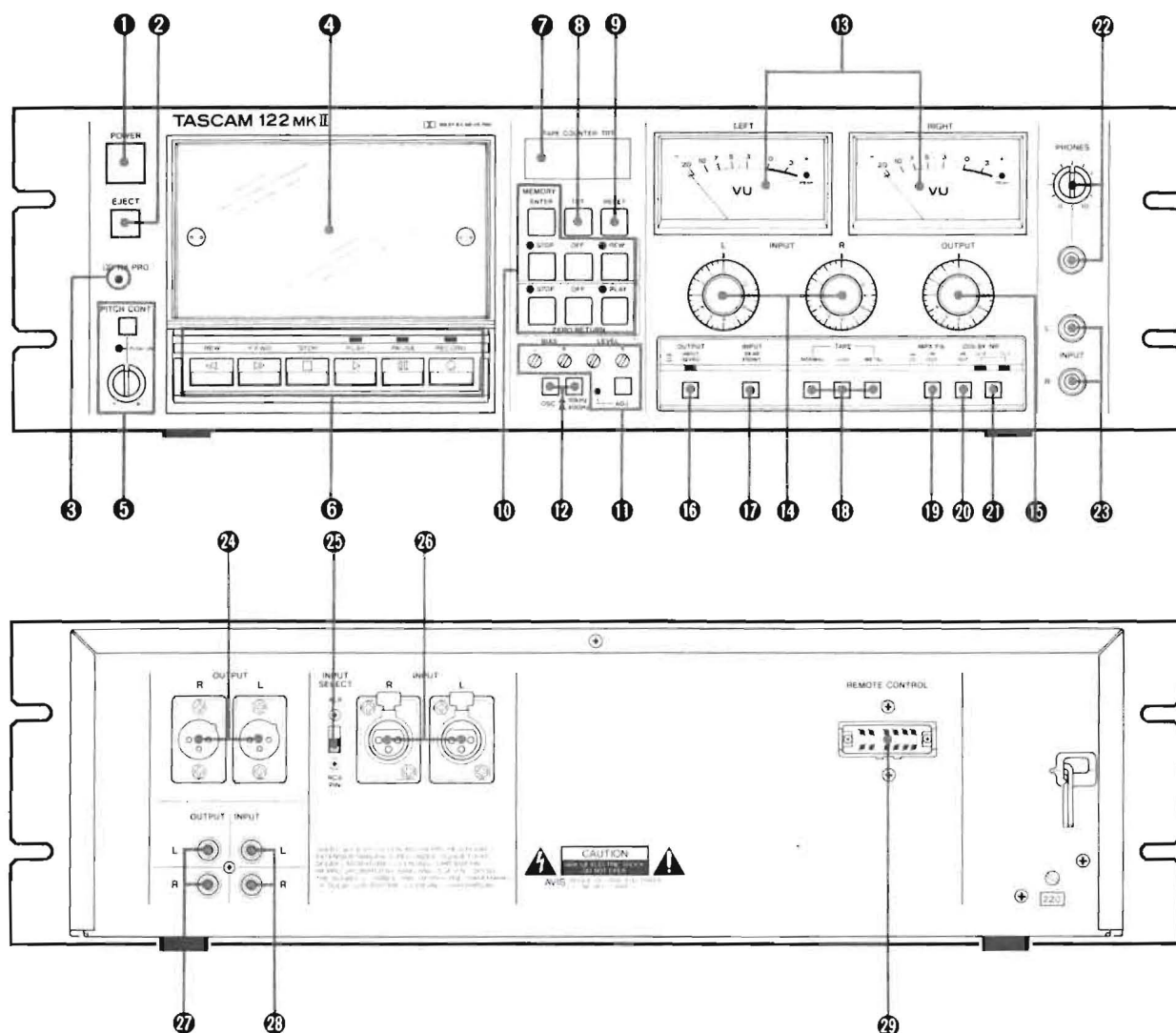
funk-entstört ist

Der Deutschen Bundespost wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.

TEAC CORPORATION

Name des Herstellers/Importeurs

Features and Controls



1 POWER Switch

This switch controls the AC power to the deck. When power is turned on, lamps in the VU meters and cassette compartment will light while the digital counter will indicate 0000.

2 EJECT Button

When pressed in STOP, opens the door of the cassette holder.

3 HX PRO Indicator

The built-in Dolby HX PRO system will be enabled whenever the transport enters Record mode, causing this indicator to light. The system remains activated when recording is

PAUSED and the indicator remains lit. For details on Dolby HX PRO, see page 11.

4 Cassette Holder

Press the EJECT button to open the cassette holder.

5 PITCH CONTROL with PUSH ON Button/Indicator

The pitch control is active only when the PUSH ON button is engaged (LED on). Variable range of the speed is plus or minus 12 % either in play or record mode.

NOTE: Make sure that the PITCH CONTROL is deactivated (LED off) when no pitch adjustment is required.

⑥ Transport Controls

This group of buttons controls the tape motion and the in/out switching of the record circuit. The optional Remote Control unit will duplicate this group of controls. When the Remote Control unit is connected, both sets of controls are active at the same time.

(▶) PLAY Button

When pressed, causes the tape to run from left to right, initiating playback. If pressed simultaneously with the RECORD button, initiates recording. If pressed from Record Pause mode, resumes recording.

(■) STOP Button

When pressed, stops the tape motion and releases all transport functions (including PAUSE).

(►►) F. FWD (Fast Forward) Button

When pressed, winds the tape at high speed; the transport mechanism automatically stops when the tape is fully wound. If pressed simultaneously with the PAUSE button, will cause the tape to remain in contact with the heads. This allows the reproduce signal to be heard in fast motion for cueing (provided that the OUTPUT (INPUT/REPRO) switch is set to REPRO).

(◀) REWIND Button

When pressed, rewinds the tape at high speed. The tape will automatically stop at its end or at counter 0000 if the ZERO RTN function is used.

If pressed simultaneously with the PAUSE button (with the OUTPUT select switch set to REPRO), will enable reverse cueing.

(●) RECORD Button

This button by itself cannot activate the record circuit. To start recording, the RECORD button must be pressed simultaneously with the PLAY button. Alternatively, press the RECORD simultaneously with the PAUSE button. This puts the deck into Record Ready mode and recording can start with a one button PLAY command.

(||) PAUSE Button

Use this button to stop the tape temporarily during the process of record or playback. To resume record or playback, press the PLAY button alone.

⑦ TAPE COUNTER/TRT Display

Tape counter is useful for locating any specific point on a tape. It counts up when the tape is moving forward (from left to right) and counts down when the tape is moving in reverse. In the TRT mode, the display shows the tape-run-time in minutes and seconds. It will not sequence to a lesser value. TRT is useful for measuring the running time of particular program.

⑧ TRT Button

When TRT is pressed, the display changes from an Index count to Tape Run Time. press again to display an Index count.

Note: When TRT is used, set the 50/60 cycle adjustment located on the bottom of the machine to match your area.

⑨ RESET Button

The RESET button will clear the display, causing it to show 0000. RESET also cancels any MEMORY position.

⑩ MEMORY Function and ZERO RETURN Switches

When used separately or together, these switches activate a variety of very helpful computer controlled transport functions. The LED indicator lights will show you which functions are in use at any given time.

MEMORY Switches

ENTER: This switch marks the current position of the tape and locks it into memory for automatic stop or rewind use.

STOP: Using this switch will cause the tape to stop when it reaches the memory position no matter what mode (except RECO) the transport is in ie: Play, Rewind, or Fast Forward.

REWIND: If this switch is pressed, the tape will start to rewind when it reaches the memory position. This function won't work in RECO or if the tape transport is already in Rewind.

OFF: This switch turns off the MEMORY functions.

ZERO RETURNS Switches

STOP: During Rewind, the tape will stop at the zero position when this switch is used.

PLAY: This switch functions during Rewind or Fast Forward modes. The tape will enter the PLAY mode when the zero position is reached.

OFF: This switch turns off both STOP and PLAY.



Combining the use of the ZERO RETURN and MEMORY functions

This combination is most commonly used to create a "Loop." When ZERO RETURN PLAY and MEMORY REWInd are used together, 122 Mk II repeatedly play back the section of tape between zero and your memory position. If ZERO RETURN STOP and MEMORY REWInd are used together, the tape will begin rewind when it reaches the memory position and will stop when it rewinds to zero. ZERO RETURN switches take priority over MEMORY switches. So that if the MEMORY position corresponds to zero, as is the case when the power is first turned on, only the ZERO RETURN switches will have effect if both functions are on.

11 BIAS/LEVEL Trimmers and ADJustment Switch

The factory-preset bias and recording levels are average values for the three types of tape (normal, chromium dioxide (CrO₂) and metal). For precise calibration of the bias/recording levels to exactly match the tape being used, set the button to the ADJust position and adjust the trimmers using a screwdriver. (This procedure is explained in detail on page 10.) To record again using the bias and recording levels which you set previously, set the button to the ADJust position. If the switch is left in the off (up) position, the factory-preset bias/recording levels will be selected.

12 OSCillator and 10 kHz/400 Hz Signal Selector Switch

Press OSC button to get 10 kHz ( position) or 400 Hz ( position) oscillator signals during BIAS and/or LEVEL adjustment.

13 VU Meters with PEAK LEDs

These meters indicate the input signal level when the OUTPUT (INPUT/REPRO) select switch is in the INPUT (down) position. When the OUTPUT select switch is in the REPRO (up) position with the ADJ button in the off (up) position, the meters will indicate the output levels of the reproduced signals which have been adjusted with the OUTPUT level control. When the OUTPUT select switch is in the REPRO (up) position with the ADJ button in the on (down) position, they will indicate the levels of the reproduced signals regardless of the setting of the OUTPUT level control.

For the metering logic, see item 16, OUTPUT (INPUT/REPRO) Select Switch. The PEAK LED provided in each meter lights to warn you of overload at +8 dB input level which could result in distorted recording.

14 INPUT (L/R) Level Controls

These controls adjust the level of signals from their respective channel's INPUT jack (either on the front or the rear panel), and are used for recording level adjustments. The left and right controls are geared together to allow simultaneous adjustment of the record level to both channels. This function is useful for fade in and out. Each channel can be adjusted independently by holding one knob and turning the other.

15 OUTPUT Level Control

This knob is used to adjust the signal level sent to the OUTPUT jacks on the rear panel. Both channels are adjusted together. The OUTPUT level control does not affect the listening level in the headphones.

16 OUTPUT (INPUT/REPRO) Select Switch

This switch selects the signals fed to the headphones (PHONES) jack and the OUTPUT jacks. INPUT: unconditionnally selects the input connected to the INPUT jacks (front or rear). Since in STOP the input can also be registered by the VU meters, this position is useful for calibration or recording level adjustments before you start the actual recording. REPRO: select the reproduce signal. As playback (or cueing) starts, the metering/phones circuits will switch to the tape. The OUTPUT circuits follow the same logic. This position is the one used most and can be considered the normal position.

Signals Sent to the PHONES and OUTPUT Jacks

OUT-PUT Selector	Transport Mode			
	STOP	PLAY	RECORD/PLAY	RECORD/PAUSE
INPUT	SOURCE	SOURCE	SOURCE	SOURCE
REPRO	—	TAPE	TAPE	—

17 INPUT (REAR/FRONT) Select Switch

Line sources can be plugged either into 1/4" phone jacks (on front), the RCA jacks (on rear) or XLR type jack (on rear) and this switch selects either front or rear inputs to feed the recording circuit.

REAR (down position): select the RCA or XLR type jacks on the rear panel.

FRONT (up position): select the 1/4" phone jacks on the front panel.

18 TAPE (NORMAL/CrO₂/METAL) Selector

Three switches are provided to select the proper amount of bias current and to match the equalization characteristics necessary for the type of tape being used. Simply press the switch corresponding to the tape loaded.

19 MPX FIL (Multiplexer Filter) Button

Use this filter when making Dolby recording of FM broadcasts; pressed (Δ IN) eliminates the pilot tone (19 kHz) and subcarrier tone (38 kHz) FM programs contain. Otherwise, the Dolby noise reduction system will not function correctly. To release this function, press the button again (to the \square OUT position).

20 DOLBY NR IN/OUT Switch

When the button pressed to the IN position, either Dolby B or C indicator will light, showing which type of circuit is in effect. If pressed again to the OUT position, it will release all noise reduction circuits.

21 DOLBY NR B/C Select Switch

This button is active only when the adjacent IN/OUT button is in the IN position, and is used to select either built-in Dolby Noise Reduction circuits. Selection is indicated by either the indicators, Dolby B or Dolby C, being lit above the button.

22 PHONES Level Control and Jack

This knob is used to adjust the listening level in the headphones plugged into the PHONES jack. The recording level heard in the headphones is also affected by the setting of the INPUT level control.

The setting of the PHONES level control does not affect the VU meters, nor does the OUTPUT level.

CAUTION: Use only stereo headphones. Mono (2-wire) headphones will cause circuit failure.



(1/4" phone 2-conductor) (1/4" phone 3-conductor)

23 INPUT (L/R) 1/4" Jacks (Front)

Easily accessible, this pair of 1/4" jacks allow quick patching/repatching of the line level signals coming from other equipment. Nominal input level is -10 dBV (0.3 V). Minimum input level is -18 dBV (126 mV).

24 OUTPUT (L/R) XLR jacks

These balanced connectors provide signals with the following output characteristics. Nominal output level is +4 dBm (1.23 V). Minimum load impedance is 10 k ohms.

25 INPUT SELECT switch (XLR/RCA PIN)

This switch selects either XLR type or RCA jacks on the rear panel for recording.

26 INPUT (L/R) XLR jacks (Rear)

This balanced connector has the following input characteristics.

Nominal input level is +4 dBm (1.23 V).

Minimum input level is -4 dBm (0.49 V).

27 OUTPUT (L/R) RCA Jacks

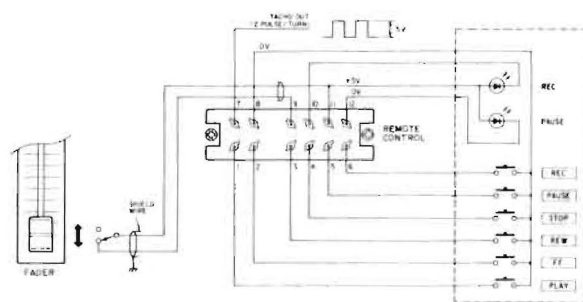
Use these RCA jacks to feed the signals from the 122 Mk II to your mixer, receiver, amplifier, etc. Nominal output level is -10 dBV (0.3 V). Minimum load impedance is 10 k ohms.

28 INPUT (L/R) RCA Jacks (Rear)

Electrical characteristics are the same as the front input jacks: nominal input level is -10 dBV (0.3 V). Minimum input level is -18 dBV (126 mV).

29 REMOTE CONTROL Connector

This multi-pin connector is for the optional TASCAM RC-71 Remote Control unit which duplicates the transport controls.



If pins 9 and 11 of this connector are short-circuited, the tape transport of this machine will enter the PAUSE mode, and if they are open, the transport will enter the PLAY mode.

Operation

RECORDING

1. Plug line-level sources into the FRONT and/or REAR INPUT jacks.
2. Select the input source (via 1/4" phone, RCA or XLR type jacks) by setting the INPUT select switch (on front) and INPUT select switch (on rear) to the corresponding position. (If necessary, adjust BIAS and LEVEL according to the tape)
3. Set the DOLBY NR system switches to the desired positions.
4. Press the OUTPUT select switch to the INPUT (down) position. This will allow you to monitor the input signal in the VU meters and headphones.
5. Use the L and R INPUT control knobs to adjust the signal of the respective channel to the appropriate level. (The nominal setting position is between 7 and 8 on the knob scale.) Using the REPRO switch, return the transport to the REPRO mode. The meters will stop reading the input signals, at this point, until the transport is switched to the Record Ready.
6. Press the RECORD and PLAY buttons together to initiate recording.

Alternatively in the Sync mode, you can press the RECORD and PAUSE buttons together. This will put the deck into Record Ready mode, allowing you to initiate recording by pressing the PLAY button alone. If this "one key" method is used, the OUTPUT select switch need not be set to INPUT for level adjustments since engaging RECORD/PAUSE by itself enables the input signal to be monitored.

7. Press the STOP button to release the record mode, or press the PAUSE button to stop, temporarily, the process of recording. To resume recording from Record Pause mode, press the PLAY button alone.

PLAYBACK

1. Set the DOLBY NR system depending on the tape being used.
2. Set the OUTPUT control knob to a reasonable position. (The nominal position is between 7 and 8 on the knob scale.) If you are using the headphones, adjust the PHONES volume control to a reasonable position. (If necessary, press the ADJUSTMENT switch.)
3. Making sure that the OUTPUT select switch is in the REPRO position, start playback by pressing the PLAY button. Re-adjust the OUTPUT control knob and/or the PHONES volume as required.
4. Stop playback by pressing the STOP button, or stop temporarily by pressing the PAUSE button. If PAUSED, playback will restart by pressing the PLAY button.

ERASING A TAPE

A previously recorded tape is automatically erased when a new recording is made on it. If an entire tape is required to be erased, use the optional Bulk Eraser TEAC E-2A (not recommendable for use with metal tapes). Another way to erase is to record with the INPUT level controls turned fully counterclockwise (minimum position), or with all input signals unplugged.

To Make Professional Quality Recordings

BIAS AND RECORDING LEVEL CALIBRATION

Tapes differ considerably in the bias required to record on them and in their sensitivity. Different types of tape are available — normal (ferric), chrome, cobalt, ferrichrome, metal. Within each type there are differences between tapes from different manufacturers; even the same type of tape from the same manufacturer can differ between production lots. Because of these fairly wide differences, setting the TAPE selector so as to obtain a factory-preset value of bias and using the standard reference recording level may not result in recordings of a consistent quality. The TASCAM 122 Mk II allows fine adjustment of bias to exactly match the tape being used; also the reference recording level can be precisely adjusted to compensate for differences in sensitivity so that a flatter recording/playback frequency response can be obtained. By adjusting (calibrating) to obtain precisely the correct levels for every tape, performance is optimized.

- Before starting adjustment, be sure to clean the heads, tape guides, rollers, etc. and demagnetize the heads and all metal parts in the tape path using the TEAC Recorder maintenance kit and E-3 Head Demagnetizer.
- If you make adjustment while monitoring through speakers, turn down the volume of the amplifier to avoid possible damage to the speakers.
- Bias can be calibrated for only one type of tape (corresponding to one setting of the TAPE selector) at a time. When the calibration switch is set to ADJust (in), the last calibration is effective. Whenever you calibrate bias, note which type of tape it corresponds to for easy reference.

When the BIAS and the RECORD LEVEL are being adjusted with the OSCillator incorporated in this machine, the sensitivity of the VU meter will be raised by 20 dB.

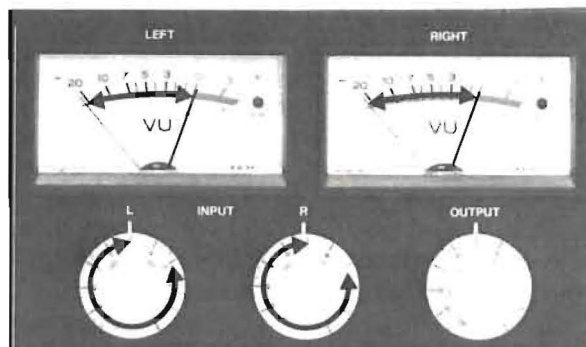
Preparation

- The controls and switches of 122 Mk II should be set as follows.

POWER ON
INPUT Level Left and Right both "0".
OUTPUT Level Position "8"
OUTPUT Selector INPUT
MPX FIL OUT
DOLBY NR OUT
MEMORY, ZERO RETURN OFF
TAPE Selector Select the type of tape being used.

Adjustment sequence

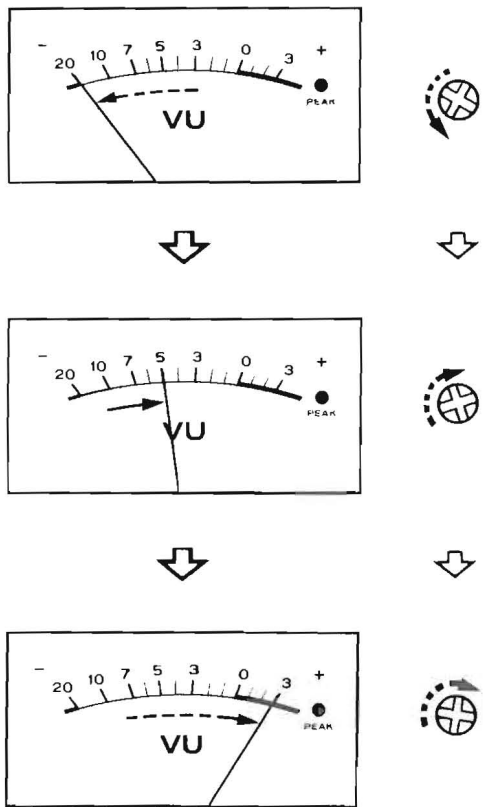
1. Put the deck in the record/pause mode by pressing the PAUSE and RECORD buttons.
2. Press the OSC button and set the signal to 400 Hz (\square position), then press the ADJ switch.
3. Set the INPUT level controls so that the VU meters read 0 VU.



4. Start recording by pressing the PLAY button.
5. Set the OUTPUT selector to REPRO.
6. Turn the BIAS trimmers fully counterclockwise.
7. Slowly turn the BIAS trimmers clockwise so that the VU meter needles deflect to the peak value; adjust one at a time.

Dolby HX PRO

Bias Level Adjustment Sequences



8. Turn the REC LEVEL trimmers so that the VU meters read 0 VU.
9. While recording, alternate the oscillator signal between 10 kHz and 400 Hz, and adjust the BIAS trimmers by rotating clockwise so that the VU meters show the same level at both frequency.
If you use different type of tape, you will experience different performance and characteristics, particularly at high frequencies, and you may have to readjust BIAS.
10. Set the oscillator signal back to 400 Hz and adjust the REC LEVEL trimmers so that the VU meters read 0 VU.

Dolby HX Pro is an "active bias" technique that can improve the quality of audio tape recordings. High-level high frequencies can be recorded more accurately, without sacrificing signal-to-noise ratio, while such side effects of tape saturation as distortion are reduced.

What Is Bias?

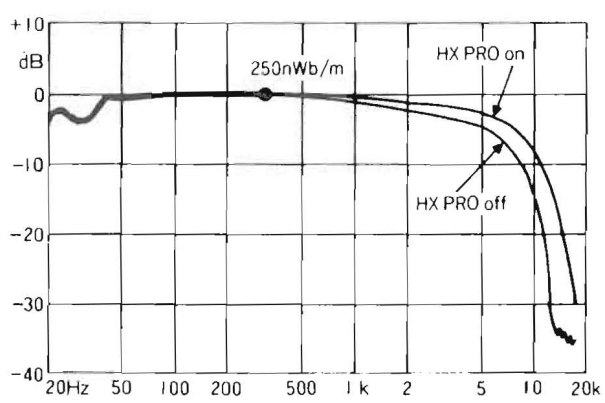
Bias is a very high-frequency signal generated within a tape deck and recorded on the tape simultaneously with the program material. This inaudible signal allows a low noise, low distortion recording and flat frequency response. Different magnetic tape formulations require different amounts of bias for optimum performance. If the bias level is too high, high-frequency Maximum Output Level (MOL) decreases.

The Problem of Self-Bias

Unfortunately, bias level is often influenced by the signal being recorded. The high frequencies contained in some music act as bias. This unpredictable source of bias is added to the existing bias, resulting in a loss of high-frequency response. As the high-frequency content of the signal increases, the ability of the recorder to record high frequencies (MOL) decreases. This phenomenon is called self-biasing.

The Dolby HX Pro Solution

The Dolby HX Pro monitors the high-frequency content of the program material and adjusts the recorder bias oscillator to maintain a con-



A typical example of effect of Dolby HX pro (with normal tapes)

stant total bias level. The result is improved high-frequency response and lower distortion. Depending on the type of tape, the improvement in headroom can be 6 dB or more.

The Benefits

With Dolby HX Pro, it is easier to make more accurate recordings of the kind of music which

contains high-level high frequencies. The improvement is similar to that of high-performance tape over conventional tape, so regardless of the type of tape used, the results will sound better. Most important of all, Dolby HX Pro requires no decoding process. Once the tape is recorded with it, the improvements will be realized when playing the tape back on any machine.

Care and Maintenance

Even though the heads used in your 122 Mk II have high wear resistance and are rigidly constructed, performance degradation or electro-mechanical failure can be prevented if maintenance is performed regularly.

CLEANING

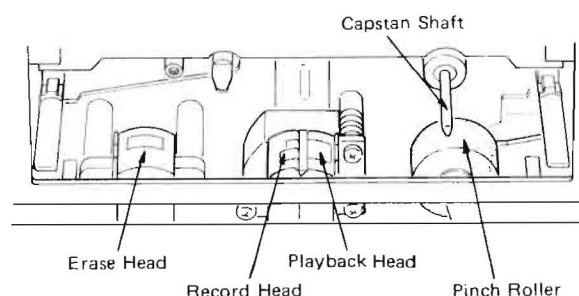
The first things you will need for maintenance are not expensive. The whole kit with the swabs and fluids you will need for months will cost less than a couple of high quality cassettes.

We cannot stress the importance of cleaning too much. Clean up before each session. Clean up after every session. Clean up every time you take a break in the middle of a session.

Here's why:

1. Any dirt or oxide build-up on the heads will force the tape away from the gaps that record and playback. This will drastically affect the response. Even so small a layer of dirt as one thousandth of an inch will result in degraded performance. All the money you have paid for high performance will be wiped out by a bit of oxide. Wipe it off with head cleaner and you're back to normal.
2. Tape and tape oxide act very much the same way as fine sandpaper. The combination will slowly grind down the tape path. If you do not clean off this abrasive material on a

regular basis, the wear will be much more rapid and will become irregular. Even wear on heads can be compensated for with electronic adjustments for a while, but uneven wear can produce notches on heads and guides that will cause the tape to "skew" and skip around, making adjustment impossible. This ragged pathway also chews up the tape, producing more abrasive material, which in turn causes more uneven wear. This begins a vicious circle that cannot be stopped once it gets a good start. The only solution to this will be to replace not only the heads, but the tape guides as well. Being conscientious about cleaning the tape path on your 112 will more than double the life of the heads and tape guides.

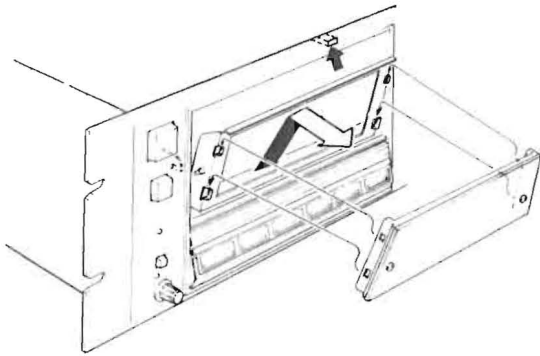


Cleaning the Heads and Tape Guides

All heads and metal parts in the tape path must be cleaned after every 6 hours of operation, or before starting and after ending a recording session.

1. Open the cassette door.

2. Grasp the two sides and pull gently upwards to remove the cover.



3. Using a good head cleaning fluid and a cotton swab, clean the heads and tape guides until the swab comes off clean. Wipe off any excess cleaning fluid with a dry swab.

Cleaning the Pinch Roller

Clean the pinch roller at least once each day the deck is used. Use a good rubber cleaner.

1. Push up the transport protection lever as illustrated. Press the **PLAY** button to engage the pinch roller and capstan shaft, while holding the protection lever up.
2. Lightly press a cotton swab moistened with rubber cleaner to the pinch roller on the right-hand side of the capstan shaft. This will prevent the swab from becoming entangled. Clean it until there is no visible residue on the pinch roller or coming off onto a clean swab.
3. Using a clean cotton swab, wipe off all excess rubber cleaner from the pinch roller. Make certain that there is no foreign matter remaining on either the pinch roller or the capstan shaft.

Cleaning the Capstan Shaft

After cleaning the pinch roller, clean the capstan shaft. Lightly press a cotton swab moistened with head cleaning fluid to the rotating capstan shaft.

DEGAUSSING (DEMAGNETIZING)

A little stray magnetism can become quite a big nuisance in tape recording. It only takes a

small amount (.2 Gauss) to cause trouble on the record head. Playing 10 cassettes will put about that much charge on the heads. A little more than that (.7 Gauss) will start to erase high frequency signals on previously recorded tapes. You can see that it's worth taking the trouble to degauss regularly.

DEGAUSSING IS ALWAYS DONE WITH THE RECORDER TURNED OFF. If you try it with the electronics on, the current pulses produced by the degausser will look just like audio signals to the heads. These pulses are around 10,000 Gauss, and will seriously damage the electronics and/or meters. Turn off your 122 Mk II, then turn on the degausser at least 1 m (3 feet) away from the recorder.

Be certain that your degausser has either a plastic cover or plastic tape covering the tip. Make sure that no metal ever touches the tape heads as it will scar them and ruin them.

Slowly move in to the tape path. Move the degausser slowly back and forth, touching lightly all metal parts in the tape path. Slowly move it away again to at least 1 m (3 feet) from the recorder before turning it off.

Be sure to concentrate while you are degaussing. Don't try to hold a conversation or think of anything else but the job you are doing. If the degausser is turned on or off by accident while it is near the heads, you may put a permanent magnetic charge on them that no amount of careful degaussing will remove. You will have to get the heads replaced. Make sure you are wide awake for this job.

A clean and properly demagnetized tape recorder will maintain its performance without any other attention for quite a while. It won't ruin previously recorded material, nor will getting it back to original specifications be difficult.

CAUTION: If the surface of the unit gets dirty, wipe the surface with a soft cloth or use a diluted neutral cleaning fluid. Clean off thoroughly. Do not use thinner, benzine, or alcohol, as they may damage the surface of the unit.

Accessories

RC-71 Remote Control Unit

The RC-71 is designed for remote control of the transport functions.



109B Input Transformer



The TASCAM 109B Input Transformer is an adaptor that matches balanced low impedance microphones with XLR connectors to unbalanced high impedance 1/4" phone jack inputs. This adaptor enables a long cable from the low impedance mic to remain balanced for rejection of hum and buzz. The male XLR connector on the end of the cable farthest from the mic is then connected to the 109B, and the 109B's phone plug is connected to the 1/4" phone jack. This approach is far superior to simply wiring a phone plug onto a 3-wire cable from the mic. The 109B not only maintains the noise rejection of the balanced low impedance mic, it also properly loads the mic to preserve correct frequency response. If you have an unbalanced input and a professional mic, the 109B is the ideal transformer.

E-3 Head Demagnetizer



The E-3 is essential for eliminating the residual magnetism that builds up on the heads, as well as other metal parts along the tape path. Demagnetization is part of regular recorder maintenance, and the TEAC E-3 is the right tool for the job.

E-2A Bulk Eraser



The E-2A allows you to erase cassettes, as well as 7" and 10" reels of tape, quickly and completely. It comes with a pilot light and integral circuit breaker to protect against overheating.

HC Head Cleaner & RC Rubber Cleaner (U.S. Only)

Using the right chemicals is important because strong solvents can dissolve the binder that holds the head laminations together. Isopropyl alcohol can leave a residue and is not always adequate for cleaning desposits from modern tape formulations. Beware of rubbing alcohol; while it is isopropyl, it also contains oil and water that leave a heavy film on the heads. TEAC HC head cleaner is formulated to clean tape heads, tape guides, and capstans without leaving a film or damaging head integrity.

Since pinch rollers are made of special rubber



compound, not metal, a different solvent is needed for cleaning them. Even a mild solvent like alcohol can cause drying and cracking of pinch rollers. TEAC RC rubber cleaner contains no alcohol. Its special solvents wipe off tape oxide, and other chemicals in RC actually rejuvenate the rubber. This increases its resiliency and enhances its ability to pull tape without slippage. HC and RC can be purchased with swabs in a tape recorder cleaning kit (part #TRC).

TZ-261 Cleaning Kit (All Except U.S.)



TASCAM Cables

Cable, because of its inherent capacitance and resistance, is an active component in an audio system. There are vast differences in cable design and performance that have significant effect on the sound quality you'll get from your equipment. TASCAM Professional Audio Cables are the best available.

Our cables feature very low capacitance (under 15 picofarads/foot) so they don't act as low pass filters and roll off high frequencies. The capacitance is also consistent; it doesn't change when the cable is bent or compressed. You don't get noise or degraded results when the cable has been used a while. Our cable's long term stability is provided by a special insulator that is as flexible as foam core dielectrics, but far more resistant to extreme cold or heat, and it doesn't let the center strands migrate. It also avoids the possibility of shearing the center conductor when the cable is crushed, so the cable does not suddenly fail.

Rather than loosely braided shield or spiral wrapped shield that can open up, we use bare copper braided shield with 97% coverage. This excludes electrostatic noise (buzz) and RFI (CB interference, etc.). We also use a 7-strand center conductor: 4 pure copper strands for minimum resistance and 3 copper weld stainless steel strands for strength. The multiple strands increase flexibility and strength while offering less resistance at ultra high frequencies due to increased surface area for the "skin effect." This improves transient response.

The outer PVC insulating jacket resists abrasion, and is tightly fitted to the shield so it will not elongate. The connectors are special, too. Their nickel plated brass center pins are a bit longer than most to establish good contact in all RCA jacks. The cadmium plated steel outer shell includes a gentle ridge which burnishes the mating jack when the connector is twisted to ensure good contact. For maximum RF shielding, the braid is terminated inside the shell and 2-radian soldered, not just spot soldered, for maximum strength. The plugs are clad with an oval jacket of molded plastic to further increase strength and make the ends easier to handle. TASCAM cable is available in lengths from 6 inches to 20 feet, or in color-coded sets of 8 for fast channel or function identification. TASCAM cable is also available in 500 foot spools.

If TASCAM professional cables are not available in your area, please try to find the next best cables. It really does make a difference in system performance.

Specifications

MECHANICAL

Tape:	Philips type cassette C-60 and C-90
Track Format:	4-track, 2-channel stereo
Tape Speed:	4.8 cm/s (1-7/8" ips)
Speed Accuracy:	±0.5 %
Pitch Control:	±12 %
Wow & Flutter ¹⁾ :	0.04 % (NAB weighted) ±0.08 % peak (DIN/IEC/ANSI weighted)
Fast Wind Time:	90 seconds for C-60
Motor:	1 FG servo direct-drive capstan motor; 1 DC reel motor; and 1 DC ancillary
Head Configuration:	3 heads; erase, playback and record
Dimentions (W x H x D):	482 x 133 x 297 mm (19" x 5-1/4" x 11-11/16")
Weight:	7.7 kg (16.94 lbs) net

ELECTRICAL

Line Input (XLR)	
Input Impedance:	40 k ohms, balanced
Nominal Input Level:	+4 dBm (1.23 V)
Minimum Input Level:	-4 dBm (0.49 V)
Line Input (1/4" and RCA)	
Input Impedance:	30 k ohms, unbalanced
Nominal Input Level:	-10 dBV (0.3 V)
Minimum Input Level:	-18 dBV (126 mV)
Line Output (XLR)	
Minimum Load Impedance:	10 k ohms or more, balanced
Output Impedance:	100 ohms
Nominal Output Level:	+4 dBm (1.23 V)
Maximum Output Level:	+12 dBm (3.1 V)
Line Output (RCA)	
Minimum Load Impedance:	10 k ohms or more, unbalanced
Output Impedance:	100 ohms
Nominal Output Level:	-10 dBV (0.3 V)
Maximum Output Level:	-2 dBV (0.8 V)
Headphone Output:	100 mW/channel maximum at 8 ohms
Bias Frequency	100 kHz
Equalization:	3180 µs + 70 µs (Metal, CrO ₂) 3180 µs + 120 µs (Normal)
Recording Level:	160 nWb/m (0 VU), Dolby reference 200 nWb/m = +3 VU
Frequency Response ²⁾ :	25 Hz – 20 kHz ±3 dB at -20 VU (Metal) 25 Hz – 19 kHz ±3 dB at -20 VU (CrO ₂) 25 Hz – 17 kHz ±3 dB at -20 VU (Normal)
Total Harmonic Distortion (THD) ²⁾ :	1 % at 0 VU, 400 Hz, 160 nWb/m (Metal)
Signal-to-Noise Ratio ²⁾ :	59 dB (NR OUT, WTD)
(Reference 3 % THD)	68 dB (DOLBY*-B NR IN, over 5 kHz) 78 dB (DOLBY-C NR IN, over 1 kHz)
Adjacent Channel Separation ²⁾ :	Better than 45 dB at 1 kHz
Erasure ²⁾ :	Better than 65 dB at 1 kHz reference +10 VU
Power Requirements:	
U.S.A./CANADA:	120 V AC, 60 Hz
EUROPE:	220 V AC, 50 Hz
U.K./AUSTRALIA:	240 V AC, 50 Hz
GENERAL EXPORT:	100/120/220/240 V AC, 50/60 Hz
Power Consumption:	24 W

In these specifications, 0 dBV is referenced to 1.0 Volt. Actual voltage levels are also given in parenthesis.
To calculate the 0 dB = 0.775 Volt reference level (i.e., 0 dBm in a 600-ohm circuit), add 2.2 dB to the listed dB value; i.e., -10 dB re: 1 V = -7.8 dB re: 0.775 V.

1) Specifications were determined using TEAC Test Tape
MTT-111

2) Specifications were determined using TEAC Test Tape


METAL MTT-5571

CrO₂ MTT-5561

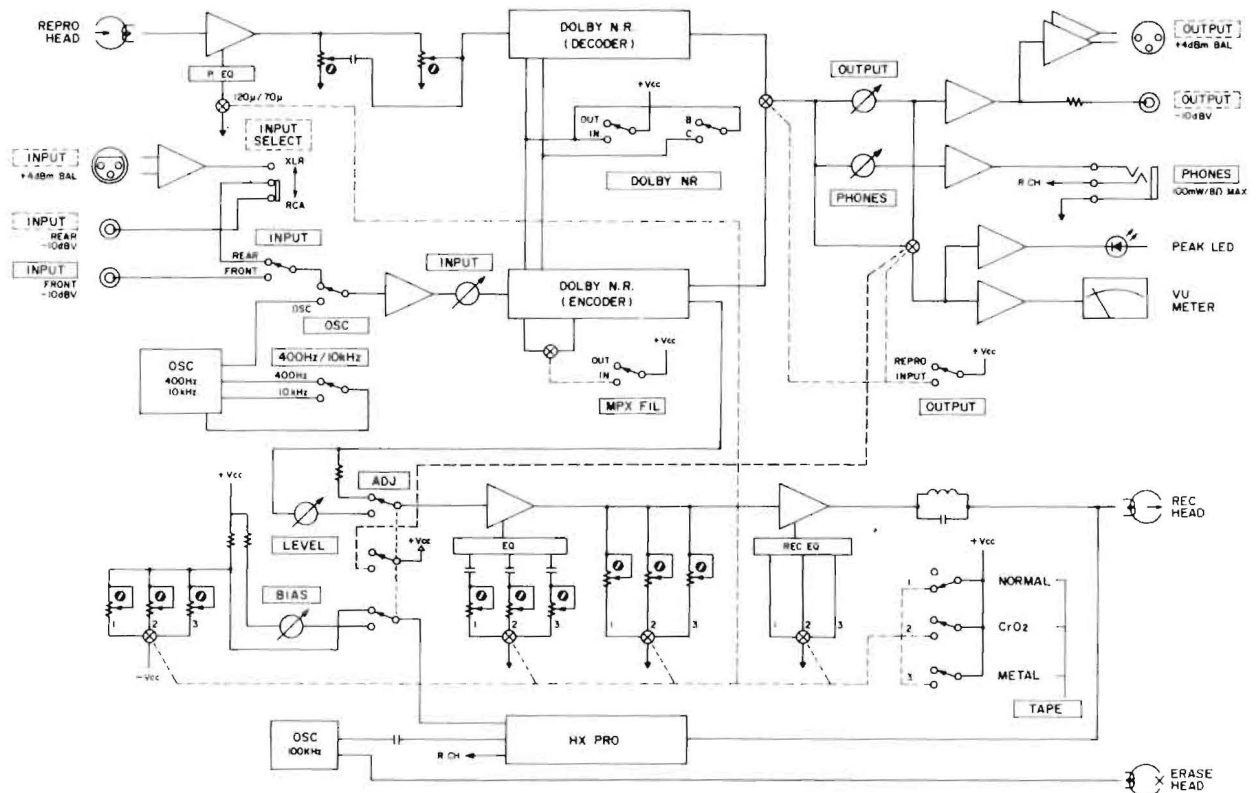
NORMAL MTT-5511

Changes in specifications and features may be made without notice or obligation.

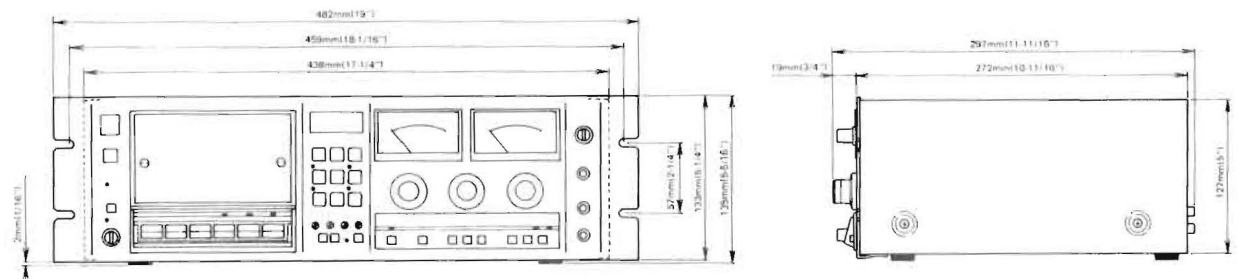
*Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.

"DOLBY" and the double-D symbol  are trademarks of Dolby Laboratories Licensing Corporation.

Block Diagram



External Dimensions



TASCAM

TEAC Professional Division

122MKII

TEAC CORPORATION

MAIN OFFICE: 3-7-3 NAKACHO MUSASHINO TOKYO PHONE (0422) 53-1111
SALES OFFICE: 4-15-30 SHIMORENJAKU MITAKA TOKYŌ PHONE (0422) 45-7741

TEAC CORPORATION OF AMERICA

7733 TELEGRAPH ROAD MONTEBELLO CALIFORNIA 90640 PHONE (213) 726-0303

TEAC CANADA LTD.

3610 NASHUA DRIVE UNIT 1 & 2 MISSISSAUGA ONTARIO L4V 1L2 PHONE 416-673-3303

TEAC AUSTRALIA PTY., LTD.

115 WHITEMAN STREET SOUTH MELBOURNE VICTORIA 3205 PHONE 699-6000

PRINTED IN JAPAN 1089U1-D-5152J

SAFETY INSTRUCTIONS

PREPARATION

- BEFORE OPERATING APPLIANCE, read and understand all the following Safety Instructions as well as operating instructions in the Owner's Manual.
- HEED all WARNINGS and FOLLOW all INSTRUCTIONS – in these Safety Instructions, in the Owner's Manual, and on the appliance itself.
- RETAIN the INSTRUCTIONS for reference when needed.

LOCATION AND HOOKUP

- Appliance should not be used near water or in areas of high humidity – for example, near a swimming pool or in a damp basement.
- Appliance should not be used near heat sources such as heat radiators, stoves, direct sunlight.
- Appliance should be located so that its position does not interfere with proper ventilation. Make sure that air vents on the appliance are not blocked from air by such objects as other appliances, draperies, walls, or carpets.
- Appliance should not be suspended from ceilings or walls except as specifically recommended by the manufacturer.
- Similarly, appliance should not be used with a cart or stand except as specifically recommended by the manufacturer.

An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.



- Appliance should be used only on power line sources as indicated in the Owner's Manual and as marked on the appliance itself.
- If appliance requires grounding, or polarization of power source, follow instructions in the Owner's Manual for proper connections.
- If appliance is to be used with an Outdoor Antenna, be sure the antenna system is grounded so as to provide some protection against voltage surges and built-up static charges. Section 810 of the National Electrical Code, ANSI/NFPA No. 70-1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. The example shown on the back is for an FM/TV antenna installation. However, the basic grounding circuit and conductor size will also apply to external AM antenna installations.
- The Outdoor Antenna should be located as far as possible away from power lines.
- Power supply cords of the appliance should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the points where they exit from the appliance.

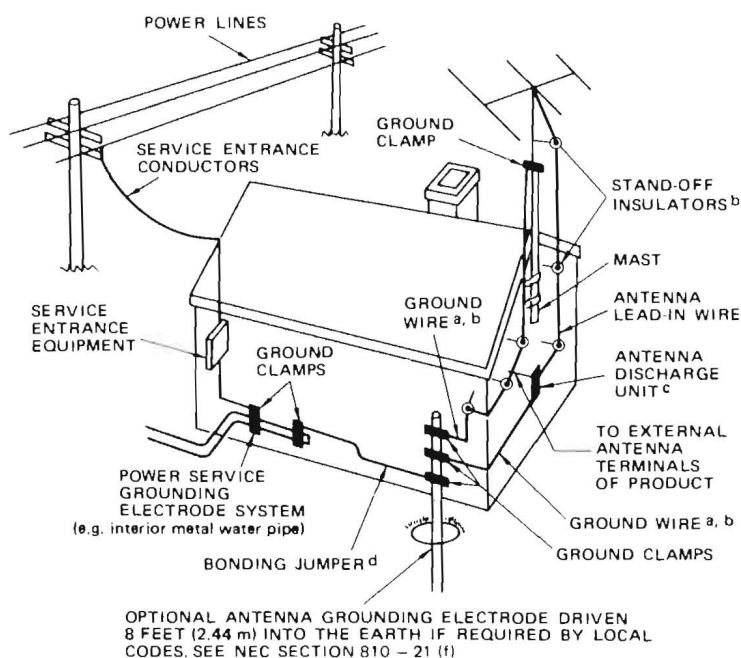
MAINTENANCE

- Cleaning of the appliance should be done only as recommended by the manufacturer.
- In extended periods of non-use, the appliance should be unplugged from the power line source.
- Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
- The appliance should be serviced by qualified service personnel when:
 - A. The power supply cord or the plug has been damaged;
 - B. Objects have fallen, or liquid has been spilled into the appliance;
 - C. The appliance has been exposed to rain;
 - D. The appliance does not appear to operate normally or exhibits a marked change in performance;
 - E. The appliance has been dropped, or the enclosure damaged.

SERVICING

The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

EXAMPLE OF ANTENNA GROUNDING ACCORDING TO NATIONAL ELECTRICAL CODE INSTRUCTIONS CONTAINED IN ARTICLE 810 – "RADIO AND TELEVISION EQUIPMENT"



a
Use No. 10 AWG (5.3 mm²) copper or No. 8 AWG (8.4 mm²) aluminum or No. 17 AWG (1.0 mm²) copper-clad steel or bronze wire, or larger, as ground wire.

b
Secure antenna lead-in and ground wires to house with stand-off insulators spaced from 4-6 feet (1.22-1.83 m) apart.

c
Mount antenna discharge unit as closely as possible to where lead-in enters house.

d
Use jumper wire not smaller than No. 6 AWG (13.3 mm²) copper, or the equivalent, when a separate antenna-grounding electrode is used. See NEC Section 810-21(j).